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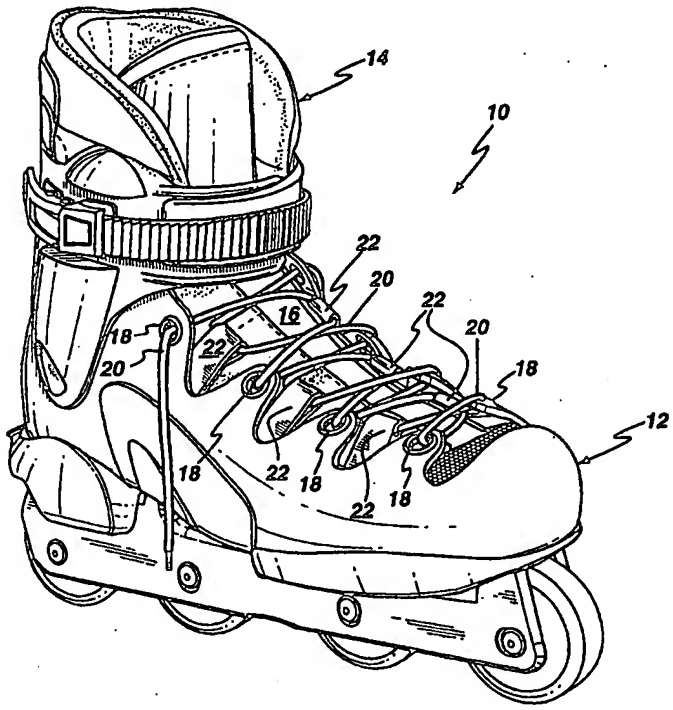
(54) Title: ROLLER SKATE BOOT LACING SYSTEM

(57) Abstract

A skate boot comprising an outer shell and an inner liner, said shell and liner being provided with an opening generally adapted to substantially correspond at least partially with a portion of the dorsal area of the foot of the wearer, said liner and said shell being provided with attachment means for engagement with a lace, said attachment means being disposed such that at least a pair of said attachment means of said shell is disposed adjacent a pair of said attachment means of said liner to form an alternate lacing arrangement.



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Roller Skate Boot Lacing Syst m

Field of the Invention

The present invention relates to roller skates, and more particularly to a lacing system for roller skates boots comprising a rigid outer shell and an inner boot liner.

Background of the Invention

Since their original conception over 100 years ago, the design of roller skates has undergone several changes. Today, although the activity remains a popular one, the type of skate most preferred by skaters is the in-line skate, as opposed to the four-wheel bi-axle skates of old. Several different constructions of skates are known in the art and many are currently available on the market. One of the more popular constructions is the ski boot style in-line skate. In this type of skate, the skate boot generally comprises a rigid plastic boot or shell to which is attached the wheel frame which provides a mounting for the wheels. The upper portion of the rigid shell is open over the dorsal part of the foot of a skater and a tongue, for example attached to the rest of the boot in the area of the skater's toes, may be disposed within the open portion. This construction allows the skater to more easily put on and take off the skate. Conventional fastening systems, such as laces or buckles, are used to tighten and secure the skate boot around the foot of the skater.

In order to provide for his comfort and to prevent injury to the skater, a liner, typically comprising a soft cotton or other textile is provided within the rigid plastic material of which the outer part of the boot is constructed. The skater actually inserts his foot into the liner, and it is the liner which is in direct contact therewith during the use of the skate.

It has been previously realised, that in order to provide the skater with the best control and performance possible, th efficiency of the transfer of force from his body to the skating surface, and *vice versa*, should be maximised; stray forces should be avoided. Skate boots of the aforementioned construction, however, do not provide for maximal efficiency of force transfer and thus for the best performance and control as the liner is capable of moving within the boot in response to the forces generated during skating.

A skate boot construction wherein the liner is secured so as to limit its movement within the shell during skating is thus desired so as to provide the skater with improved control and performance.

Object and Statement of the Invention

It is thus an object of one aspect of the present invention to provide a roller skate wherein the liner is arranged so as to limit its movement within the rigid outer shell of the skate boot during skating.

As embodied and broadly described herein, the present invention provides a lacing system for a boot, said boot comprising a first outer member and a second inner member, said lacing system comprising a first set of attachment means provided on said first outer member, and a second set of attachment means provided on said second inner member, wherein at least a pair of attachment means of each set is disposed such that a single lacing means provided on said boot is capable to engage alternately the first outer member and the second inner member.

The shell and the liner of a boot using such a system are capable of being co-laced, *i.e.* it is possible to lace-up and tighten the shell and the liner by a single lace. The foot is thus well maintained and the force transfer from the foot to the frame of the skate is increased.

Preferably, the attachment means comprises eyelets and/or straps and/or hooks or the like. The boot provided with such a system can thus be configured according to an almost unlimited number of possibilities.

As embodied and broadly described herein, the present invention also provides a skate boot comprising an outer shell and an inner liner, said shell and liner being provided with an opening generally adapted to substantially correspond at least partially with a portion of the dorsal area of the foot of the wearer, said liner and said shell being provided with attachment means for engagement with a lace, said attachment means being disposed such that at least a pair of said attachment means of said shell is disposed adjacent a pair of said attachment means of said liner to form an alternate lacing arrangement.

The shell and the liner are capable of being co-laced, *i.e.* it is possible to lace-up and tighten the shell and the liner by a single lace. The foot is thus well maintained and the force transfer from the foot to the frame of the skate is increased.

Preferably, the lacing arrangement is such that a lacing means provided on said boot is capable to alternately engage said liner attachment means and said shell attachment means. The alternate arrangement provides an efficient force distribution between the liner and the shell. The sequences or alternations between the liner and the shell may vary from one example to the other. In other words, the lace could pass *x* times through the liner and *y* times through the shell, *x* and *y* being equal or different numbers.

Preferably, the attachment means comprises eyelets and/or straps and/or hooks or the like. This provides a vast choice of designs for the boot.

Other objects and features of the invention will become apparent by reference to the following description and the drawings.

Brief Description of the Drawings

A detailed description of preferred embodiments of the present invention is provided hereinbelow with reference to the following drawings, in which:

Figure 1 is a perspective view of the skate boot of the present invention;

Figure 2 is a perspective view of a second embodiment of the skate boot of the present invention;

Figure 3 is an exploded perspective view of the liner and the shell of a skate boot according to the invention;

Figures 4 to 6 are top views of variants of the skate boot of the invention with illustrating different lacing sequences or alternations.

In the drawings, preferred embodiments of the invention are illustrated by way of example. It is to be expressly understood that the description and drawings are only for purposes of illustration and as an aid to understanding, and are not intended to be a definition of the limits of the invention.

Detailed Description of Preferred Embodiments

Referring to Figure 1, a skate boot 10 of the present invention comprises a substantially rigid outer shell 12, sometimes referred to as plastic lower of skate and a liner 14. Both the shell 12 and the liner 14 are constructed of conventional materials and in accordance with methods familiar to those skilled in the art. As a non-limiting example, the shell 12 may be constructed of an

injection-moulded plastic, and the liner 14 of a machine-woven cotton or cotton/polyester blend.

Both the shell 12 and the liner 14 have a longitudinal opening 16 along the dorsal area of the foot. Along each side of the opening 16 in the shell 12, there is provided a plurality of shell attachment means 18, for example eyelets, adapted to receive a lacing means 20, for instance a lace or the like, so as to allow the shell 12 to be tightened about the foot of the skater. Similarly, attached to the liner 14 on each side of the opening 16, there is provided a plurality of liner attachment means 22, for instance straps, adapted to receive a lacing means 20, for instance a lace or the like, so as to allow the liner 14 to be tightened about the foot of the skater.

In this embodiment, the eyelets 18 and the straps 22 are alternately exposed such that the single lace 20 is capable of co-lacing both the shell 12 (through the eyelets 18) and the liner 14 (through the straps 22). In this configuration, illustrated in figure 1, starting from the toe and working up the skate boot, the skate boot is constructed so that the lace is alternately laced through an eyelet 18 of the shell 12 and a strap 22 of the liner 14. Such a configuration is not however required. In accordance with the present invention, it would be possible to have a skate boot with any number of lacing sequences or alternations with respect to the shell 12 and the liner 14, as long as a single lace would simultaneously lace-up (*i.e.* co-lace) both the shell 12 and the liner 14. For example a construction wherein the lace would pass twice through the shell and once through the liner, as shown in figure 6, in an alternating fashion, would be within the scope of the present invention. Figure 5 illustrates another embodiment wherein the lace passes twice through the liner and once through the shell.

Moreover, it is not necessary that the lacing means be specifically secured by an eyelet 18 on the shell 12 and by a strap 22 on the liner 14. On either the shell 12 or the liner 14 the lace could be secured by eyelets, straps, hooks, or by any other conventional structure known to those skilled in the art. In this respect, in the embodiment illustrated in figures 2 and 4, the straps 22 on the liner 14 of figure 1 have been replaced by eyelets 24.

Figure 3 illustrates a similar embodiment with an exploded perspective view. In this example, the liner 14 has three pairs of liner attachment means 24, and the shell 12 has four pairs of shell attachment means 18.

According to the invention, when the skate is laced and the lace 20 is pulled tight, the liner 14 will become tightened about the foot of the skater, and simultaneously, the shell 12 will become tightened about the liner. This synchronous tightening will provide a better, more snug fit, between the shell 12, the liner 14 and the skater's foot. In addition, as the shell 12 and the liner 14 are co-laced, the movement of the liner 14 within the shell 12 will be further limited as compared with prior art skate boot constructions.

The above description of preferred embodiments should not be interpreted in a limiting manner since other variations, modifications and refinements are possible within the spirit and scope of the present invention. The scope of the invention is defined in the appended claims and their equivalents.

CLAIMS

1. A lacing system for a boot, said boot comprising a first outer member and a second inner member, said lacing system comprising a first set of attachment means provided on said first outer member, and a second set of attachment means provided on said second inner member, wherein at least a pair of attachment means of each set is disposed such that a single lacing means provided on said boot is capable to engage alternately the first outer member and the second inner member.

2. A lacing system as defined in claim 1, wherein the attachment means comprises eyelets.

3. A lacing system as defined in claim 1, wherein the attachment means comprises straps.

4. A lacing system as defined in claim 1, wherein the attachment means comprises hooks.

5. A skate boot comprising an outer shell and an inner liner, said shell and liner being provided with an opening generally adapted to substantially correspond at least partially with a portion of the dorsal area of the foot of the wearer, said liner and said shell being provided with attachment means for engagement with a lace, said attachment means being disposed such that at least a pair of said attachment means of said shell is disposed adjacent a pair of said attachment means of said liner to form an alternate lacing arrangement.

6. A skate boot as defined in claim 5, wherein said lacing arrangement is such that a lacing means provided on said boot is capable to alternately engage said liner attachment means and said shell attachment means.

7. A skate boot as defined in claim 5, wherein the attachment means comprises eyelets.

8. A skate boot as defined in claim 5, wherein the attachment means comprises straps.

9. A skate boot as defined in claim 5, wherein the attachment means comprises hooks.

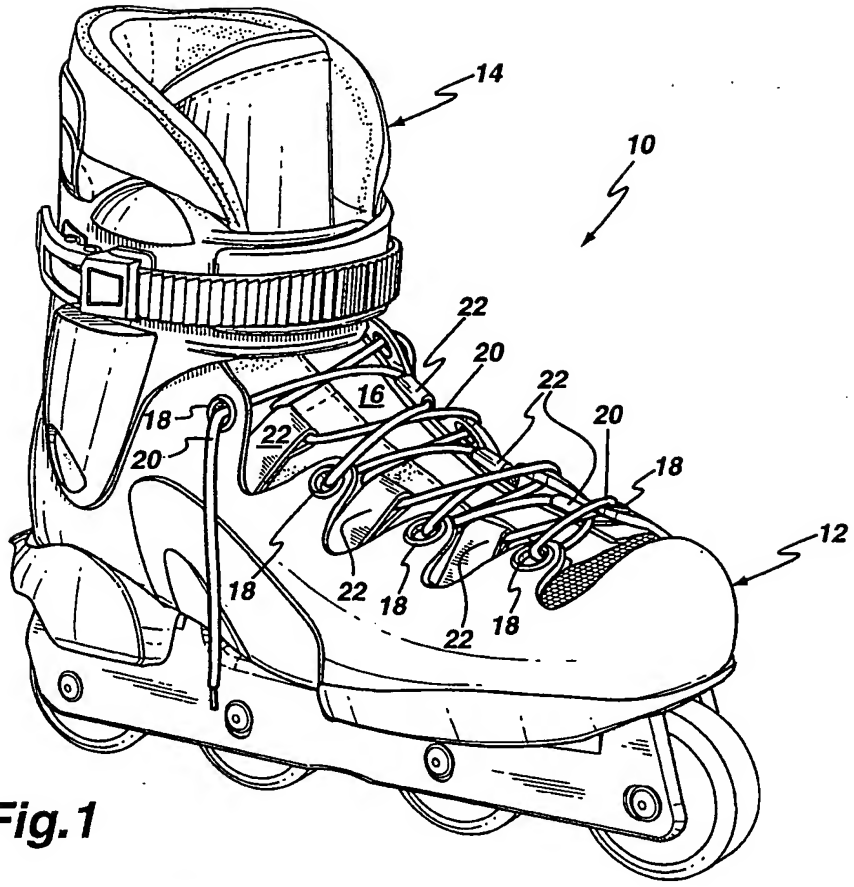
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Fig.1

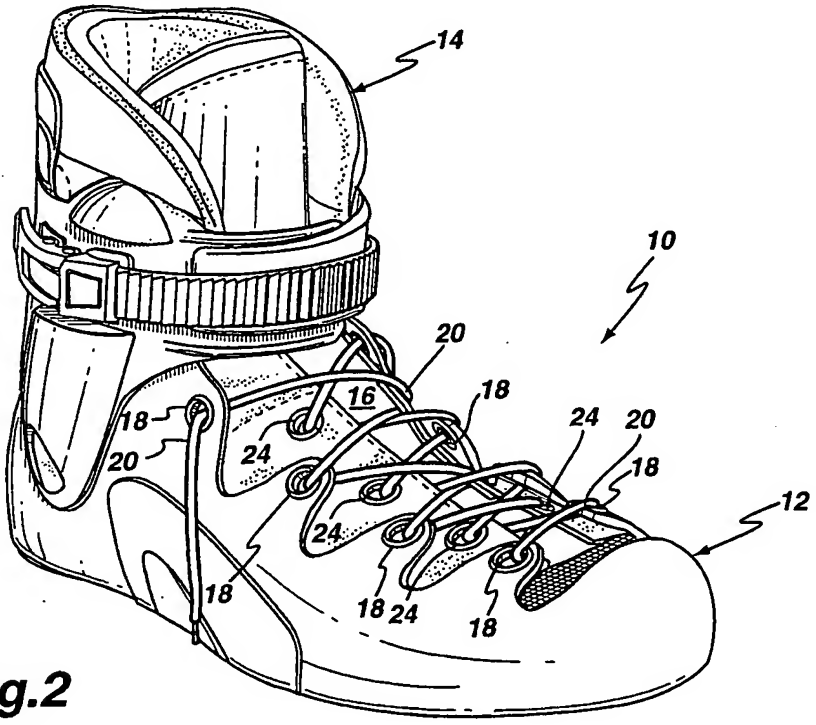
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Fig.2

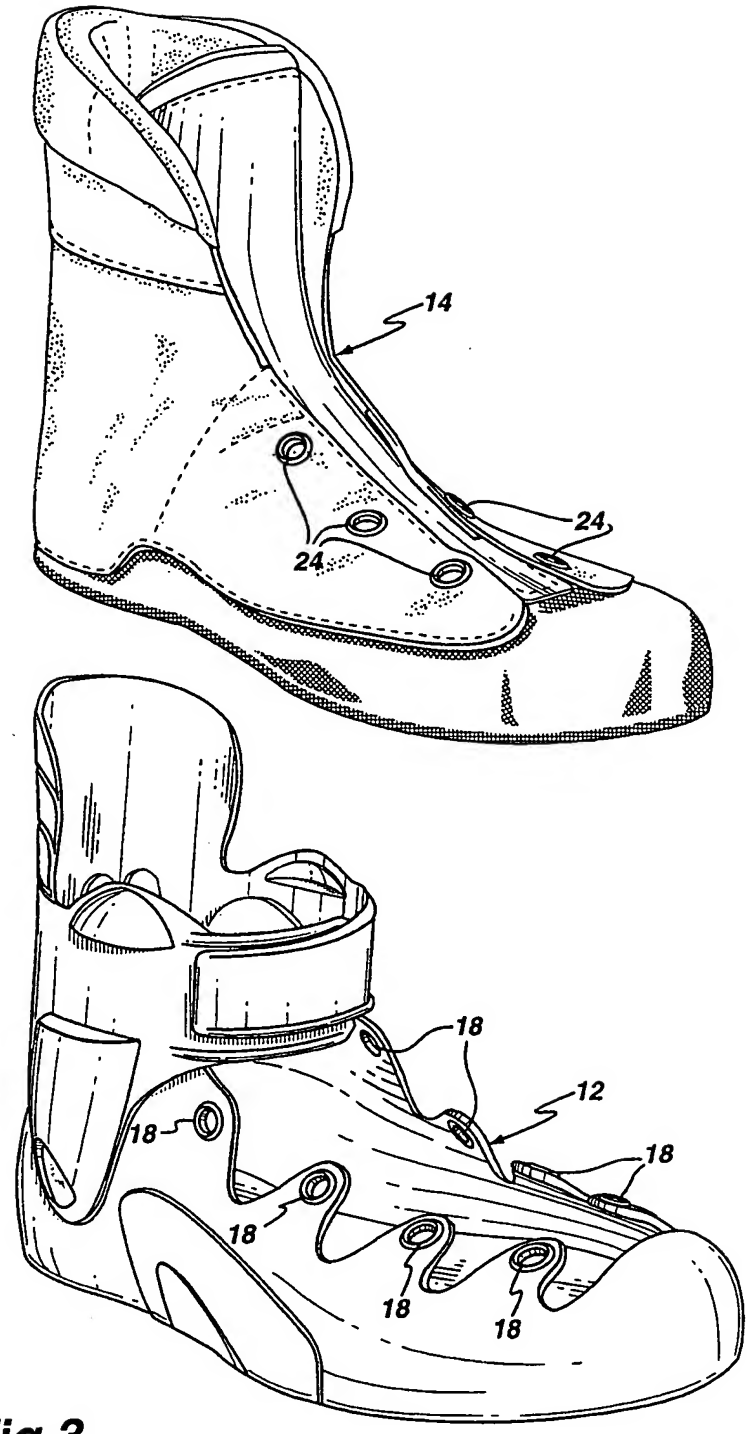

Fig.3

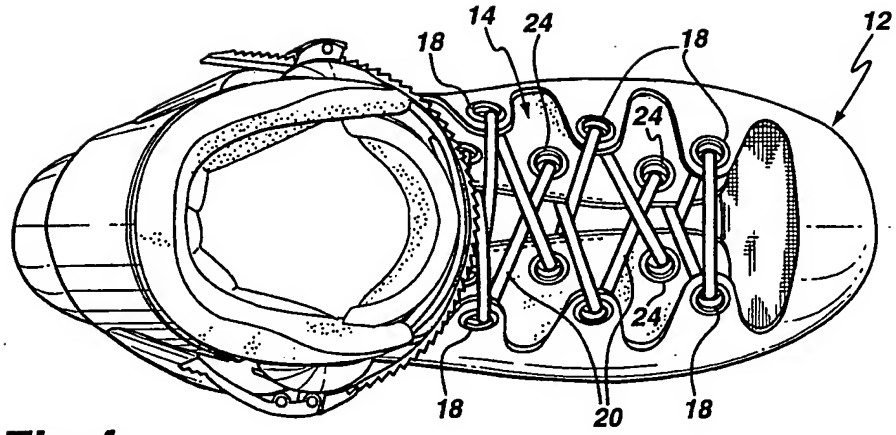

Fig.4

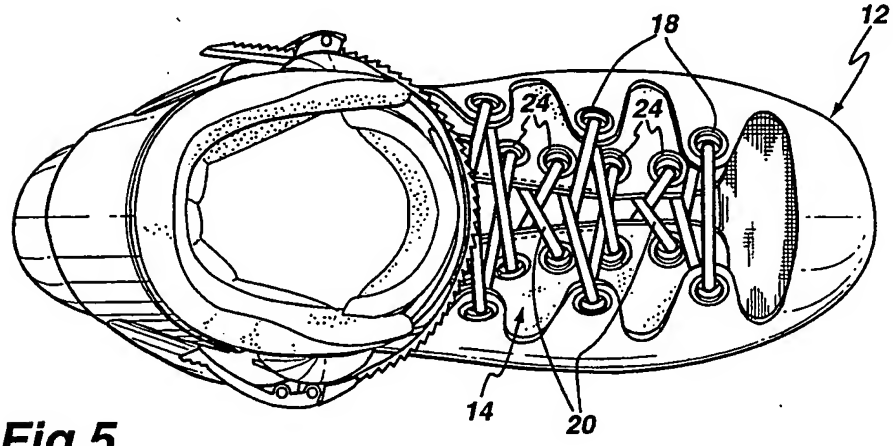

Fig.5

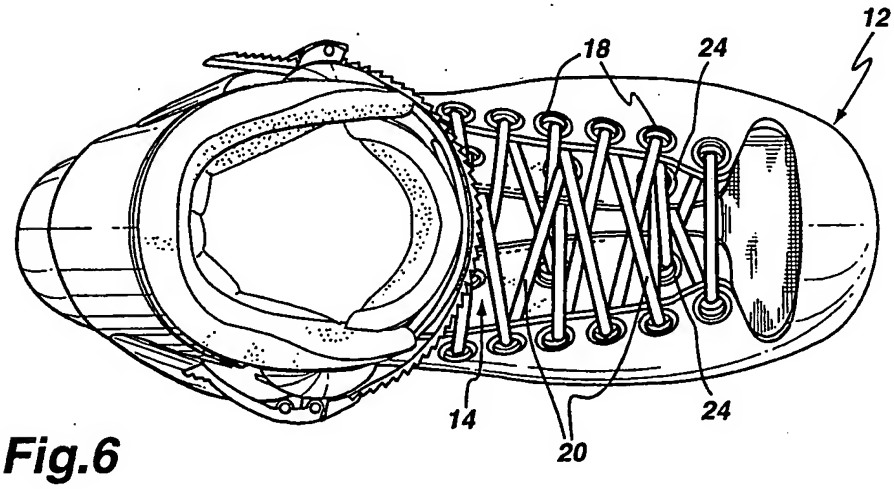

Fig.6

INTERNATIONAL SEARCH REPORT

Inter. ional Application No
PCT/CA 98/00154

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A43B5/16 A43C1/00 A43B5/00

According to International Patent Classification(IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 A43B A43C

Documentation searched other than minimumdocumentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	EP 0 784 944 A (SALOMON) 23 July 1997 see the whole document	1-5
X	WO 89 04126 A (TMC) 18 May 1989 see the whole document	1-4
P,A	EP 0 796 571 A (SALOMON) 24 September 1997 see the whole document	1,5
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☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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